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4-25-2016

# Applying Heuristics and Biases More Broadly and Cautiously

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### Opus Citation

Abraham Schwab (2016). Applying Heuristics and Biases More Broadly and Cautiously. *The American Journal of Bioethics*.15 (5), 25-27.

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To cite this article: Abraham P. Schwab (2016) Applying Heuristics and Biases More Broadly and Cautiously, The American Journal of Bioethics, 16:5, 25-27, DOI: [10.1080/15265161.2016.1159764](https://doi.org/10.1080/15265161.2016.1159764)

To link to this article: <http://dx.doi.org/10.1080/15265161.2016.1159764>



Published online: 25 Apr 2016.



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# Applying Heuristics and Biases More Broadly and Cautiously

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In the target article “Biases and Heuristics in Decision Making and Their Impact on Autonomy,” Blumenthal-Barby (2016) contributes to ongoing attempts to answer a fundamental question: How should we (re)think about patient autonomy in light of our increasing understanding of the limits of human judgment? She outlines a framework cordoning off understanding, intentionality, and alienation as areas where patient autonomy may be challenged by the biases of judgment. When biases undermine patient understanding, the threat to autonomy is direct and serious—the possibility of informed consent is challenged. When biases undermine intentionality, the patient’s judgment is dictated by (or, alternatively paralyzed by) bias. Finally, when biases control or alienate a patient as decision-maker, the patient feels as though a decision is not theirs—“it was the ‘bias talking’” (Blumenthal-Barby 2016, 12). Here again, the possibility of consent is challenged.

In this commentary, I offer two strategies for expanding and applying this framework.<sup>1</sup> First, the application of the heuristics and biases approach warrants expansion to include practitioner judgment.<sup>2</sup> The likely biases of practitioner decision making threaten patient autonomy as well. Second, the conclusions of cognitive psychology warrant a more thorough critical appraisal, both on their own merits and in application to the medical setting. Valuable as the heuristics and biases approach may be for rethinking autonomy, there are real risks of unwarranted application.

## PRACTITIONER JUDGMENT AND PATIENT AUTONOMY

As Blumenthal-Barby demonstrates through numerous examples, the way that physicians present information and recommendations to patients can bias patient understanding. By focusing narrowly on the biases of patient judgment, one might assume that the understanding and recommendations of practitioners are unbiased. One reason to take this view is the practitioner’s expertise. As the

products of specialized and rigorous training, the practitioners’ judgment should be better than the judgment of a lay person. And it will be in many cases. But the evidence that expert judgment is also subject to cognitive biases is robust (Koehler, Brenner, and Griffin 2002) and worthy of investigation (Schwab 2008). These biases can lead practitioners to misunderstand the situation (much as a patient might), and even when there is no misunderstanding, these biases can lead practitioners to make biased recommendations.

Take, for example, the bias of overconfidence. As Baumann, Deber, and Thompson (1991) demonstrated (and Berner and Graber [2008] reiterate), practitioner understanding can be biased by overconfidence. In the Baumann, Deber, and Thompson study, practitioners confronted with similar cases recommended incompatible treatments with high degrees of confidence. On the individual level, these practitioners were certain their recommendation was the right one, but the recommendations across individual practitioners were incompatible. This kind of study demonstrates that practitioners may misunderstand the implications of a patient’s medical condition. This misunderstanding, then, gets passed on to the patient when patients are informed of a diagnosis, prognosis, or recommendations. Even if the patient accurately understands everything the practitioner presents, the patient’s final judgment will be biased by the practitioner’s misunderstanding.

Additionally, practitioners may introduce bias when evaluating their (accurate) understanding of a patient’s condition. Take, for example, a study by Redelmeier and Shafer (1995) that showed how introducing a second, but equivalent, medication into a physician’s decision matrix led some physicians to make a different recommendation. The choice between no treatment and one possibly effective treatment and the choice between no treatment and two similar possibly effective treatments should produce similar recommendations by practitioners. But Redelmeier and Shafer (1995) found that in the latter case, more physicians recommended no treatment. Even if practitioners

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1. It seems that more could be done to distinguish concerns about intentionality and concerns about alienation/controlling influence. As written, these appear to be two sides of the same coin—the biases of human judgment alienate or control, thereby undermining the possibility of patient intentionality. For this commentary, however, this concern can be set aside. The critiques offered here are indifferent to this distinction.

2. I favor the term “practitioner” over “physician,” as a term inclusive of all the medical professionals making judgments about patient care.

accurately understand the medical situation and its implications, the effect of unconscious bias may lead to recommendations out of line with those understandings and the patient's best interests.

In an indirect but substantive way, the biases of practitioner judgment can undermine patient autonomy. Importantly, these threats to patient autonomy may be more substantial than the patient's own bias. When the practitioner's bias infects the presentation of information to patients, no strategy for debiasing patient judgment will debias the final decision.

## APPLICATION IN MEDICAL PRACTICE

One of the key insights of the heuristics and biases approach is that the background conditions of human judgment have significant, but unconscious, effects on judgment. But the predictable biases in judgment will affect different decision makers differently depending on the background conditions in play. For example, the ease of recalling similar experiences opens the door for bias. But not all background conditions are the same. Different decision makers have different examples that are easy to recall. Patients with chronic diseases may rely on their personal experiences, while the infrequent patient may rely on the representations of medicine in popular culture. Further, even when robust evidence supports the existence of a particular bias in general, the bias may be not applicable in medical practice. For example, there remains some disagreement about the effects of sunk costs on physician judgment. Eisenberg et al. (2012) argue for continued attention despite the Bornstein, Emler, and Chapman (1999) demonstration that medical residents are not subject to it. While I prefer Bornstein's empirical evidence to Eisenberg's theorizing, a single study on medical residents requires supplemental evidence to support the conclusion that sunk costs do not affect practitioner judgment.

Accordingly, the effects of heuristics and biases on patient autonomy requires continued field testing. While the evidence of bias in human judgment remains generally robust, evidence of any particular bias or set of biases in the medical setting requires clear and specific evidentiary support before steps to address their effects should be considered. Doing otherwise risks undue application and missed opportunities.

## REPRODUCIBILITY: A WORD OF CAUTION

Within the last few years, psychologists have become increasingly concerned with the reproducibility of the results published in their field. As Ioannidis put it, the current pressure to publish without similar efforts at reproduction risks mixing "unconfirmed genuine discoveries and unchallenged fallacies" (Ioannidis 2012, 649). These concerns have led to large, collaborative attempts to reproduce or recreate the published conclusions of psychological science. Starting in 2012, the Open Science Collaboration

(2012) began evaluating studies from top-tier journals in psychology. To the degree possible, it attempted to recreate the conditions of the initial experiment and tried to reproduce the same conclusion. The results were discouraging (Open Science Collaboration 2015). Of the published results they attempted to reproduce, about 4 in 10 were successful.<sup>3</sup> Failing to reproduce 60% of the conclusions in a separate experiment casts doubt on the applicability or validity of the initial conclusion.<sup>4</sup> Accordingly, efforts to apply the biases should be cautiously discerning. The conclusion that human judgment involves heuristics and biases has been robustly demonstrated, but not every single bias discussed in the literature shares that robust support.

Blumenthal-Barby's framework is a valuable contribution and may move forward the dialogue about respecting patient autonomy given the constraints of human judgment. My concerns about the effective application of this framework would be addressed by more substantive attention to the effects of practitioner bias on patient autonomy and a research program that cautiously applies the conclusions of cognitive psychology within the specific circumstances of medical decision-making. ■

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3. Even though the evaluated studies covered areas of psychological research beyond the heuristics and biases approach, the implications of the study include it. That is, the problems are systemic for the field and not specific to any particular subject matter.

4. It's for this reason that we should consider the sunk cost bias in physician judgment an open question—Bornstein, Emler, and Chapman (1999) notwithstanding.

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# Pre-Authorization: A Novel Decision-Making Heuristic That May Promote Autonomy

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While the nature of autonomy has been debated for centuries, recent scholarship has been reexamining our conception(s) of autonomy in light of findings from the behavioral, cognitive, and neural sciences (Felsen and Reiner 2011; Blumenthal-Barby 2016). Blumenthal-Barby's (2016) target article provides us with a timely and helpful framework for thinking about this issue in a systematic way, specifically in relation to the wide range of cognitive biases and heuristics that we employ in our decision making. Building on this, we wish to expand the framework beyond the article's focus on the threat posed by biases and heuristics by suggesting that it is possible for at least some heuristics to promote autonomy. We hope to demonstrate this point by introducing the conceptual framework for a novel heuristic that we call *pre-authorization*.

Blumenthal-Barby argues that biases and heuristics "pose a serious threat to autonomous decision making and human agency" and that, consequently, efforts should be made to remove, mitigate, or counter them. While recognizing the autonomy-threatening potential of these "fast thinking" mechanisms, as well as agreeing with the author about the types of cases in which this potential is likely to be actualized, we suggest that it does not capture the full range of interactions that are relevant to a balanced assessment of their impact on autonomy. If, as is widely acknowledged, at least some heuristics are adaptive responses to particular real-world decision-making situations (Gigerenzer 2008), the issue at hand becomes elucidating whether, and under what conditions, the cognitive influence of any particular heuristic is autonomy-threatening, autonomy-preserving, or even autonomy-promoting. Blumenthal-Barby focuses on the first of these categories;

with respect to the "component of absence of controlling or alienating influence," (8) she contends that if the person's attitude toward the influence is one of feeling controlled or alienated from her decision on account of the workings of a cognitive bias or heuristic, her autonomy is diminished.

We agree with Blumenthal-Barby's (2016) recognition that "the relevant question for judgments of autonomous action is *the person's attitude toward the influence* that is leading that person toward one decision or action or another" (8, emphasis added). But what does it mean to have an attitude toward an influence? When an influence is entirely alienating or controlling, one can reasonably adopt an attitude of rejection, lest one's decisions be influenced unduly by forces that we deem inappropriate. But in navigating our lives, we sometimes welcome certain influences, and under those circumstances there seems to be little threat to meaningful autonomy. So what is different about the influence that is welcomed from the one that is resisted? We suggest one solution: that the extent to which the source of an influence is *pre-authorized* critically determines how it affects autonomy. We have been studying this idea within the context of investigating the welcome or unwelcome nature of socio-relational influences upon people's attitudes about autonomy, but it also has implications for thinking about the effects of cognitive biases and heuristics on autonomy more generally.

We understand pre-authorization as a process by which an individual gives a certain agent preferential access to influencing her decision-making processes. Commonly, pre-authorization occurs before a specific decision is made, and usually for decisions about which certain

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